

**AMENDMENTS TO THE CLAIMS**

Please amend claim 8 as indicated in the following list of claims:

**LISTING OF CLAIMS**

- (1) (Original) A micropump, comprising a body of semiconductor material, characterized by a plurality of fluid-tight chambers, selectively openable, formed within said body and having a preset internal pressure.
- (2) (Original) The micropump according to claim 1, characterized in that said fluid-tight chambers are sealed by at least one diaphragm, openable electrically.
- (3) (Original) The micropump according to claim 2, characterized in that said diaphragm is a dielectric material layer.
- (4) (Original) The micropump according to claim 3, characterized in that said diaphragm is of silicon dioxide.
- (5) (Original) The micropump according to claim 4, characterized in that said diaphragm has a thickness not greater than 1  $\mu\text{m}$ .
- (6) (Original) The micropump according to claim 2, characterized by a conductive diaphragm for each fluid-tight chamber.
- (7) (Original) The micropump according to claim 6, characterized in that each said diaphragm comprises a respective electrode having a preferential melting point near an inlet of a respective fluid-tight chamber.
- (8) (Currently Amended) The micropump according to ~~any of claims 2 to~~ claim 6, characterized by electrical-opening means for opening said diaphragm.
- (9) (Original) The micropump according to claim 8, characterized in that said electrical-opening means comprise at least one first electrode and, for each fluid-tight chamber, a respective second electrode, said diaphragm being arranged between said first electrode and a respective one of said second electrodes near an inlet of each said fluid-tight chamber.
- (10) (Original) The micropump according to claim 9, characterized by a first voltage source, connectable to said first electrode of said micropump and supplying a first voltage (V1), and a second voltage source, selectively connectable to one of said second electrodes of said micropump and supplying a second voltage (V2).

- (11) (Original) The micropump according to claim 8, characterized in that said electrical-opening means comprises a current source, selectively connectable to one of said electrodes and supplying a current (I) that melts said electrodes.
- (12) (Original) A process for manufacturing a vacuum micropump, comprising the steps of:
- forming cavities in a substrate of a wafer of semiconductor material; and
  - sealing said cavities at a preset pressure.
- (13) (Original) The process according to claim 12, wherein said step of forming cavities comprises the steps of:
- forming, on top of said substrate, a mask having sets of openings;
  - etching said substrate through said sets of openings;
  - coating exposed portions of said mask with a first layer of said semiconductor material; and
  - thermally oxidizing said first layer so as to close said first sets of openings.
- (14) (Original) The process according to claim 13, comprising the steps of:
- growing an epitaxial layer on said mask;
  - depositing at least one conductive line on top of said epitaxial layer; and
  - etching said conductive line and said epitaxial layer until said cavities are reached.
- (15) (Original) The process according to claim 13, wherein said step of sealing comprises depositing a second layer of dielectric material at controlled pressure.
- (16) (Original) The process according to claim 15, wherein said second layer is of silicon dioxide.
- (17) (Original) The process according to claim 16, in which said second layer has a thickness not greater than 1  $\mu\text{m}$ .
- (18) (Original) A method of amplification, comprising amplifying a target nucleic acid in an integrated microfluidic reactor, wherein a fluid comprising the target nucleic acid is moved through the microfluidic reactor using the micropump of any of claims 1-11.
- (19) (Original) A method of biological analysis, comprising analyzing a target biological molecule in an integrated microfluidic reactor, wherein a fluid comprising the target biological molecule is moved through the microfluidic reactor using the micropump of any of claims 1-11.

**AMENDMENTS TO THE DRAWINGS**

The attached sheet(s) of drawings includes changes to the language of labeling in Fig. 9 from Italian to English.